REMARKS

Claims 1-14, 17, and 18 are pending in the application. Claims 15 and 16 have been cancelled by this amendment without prejudice. No claims are presently allowed. Claims 2, 3, and 6-10 have been objected to, but would be allowable in independent form.

Claims 4 and 6 are amended to clarify that the cap layer(s) are p-doped.

Claim 14 is amended to incorporate the limitation from canceled claim 15.

No new matter has been added.

Claim Rejections – 35 U.S.C. § 102

Claims 1, 4, and 5 have been rejected under 35 U.S.C § 102(b) as allegedly anticipated by Tehrani et al. (US 5,349,214).

Claim 1 recites a method of fabricating a heterostructure device by building various layers, including a p-doped cap layer.

Tehrani discloses a heterojunction device including various layers.

In order to make a *prima facie* case of anticipation, the reference must disclose each limitation of the claim. *Verdegaal Bros. v. Union Oil Co. of California*, 2 U.S.P.Q.2d 1051, 1053, 814 F.2d 628, 631 (Fed. Cir. 1987); MPEP 2131. Among other deficiencies, the reference does not disclose the limitation in claim 1 of forming a p-doped cap layer.

The Examiner stated that the p-doped cap layer is anticipated by the first cap layer 33 and second cap layer 34 of Tehrani. However, these layers are not disclosed as being p-doped. The only materials disclosed are GaSb for the first cap layer 33 and InAs for the second cap layer 34 (col. 7, lines 53-56). These materials alone are not p-doped. Although the reference refers to GaSb as being p-type (col. 6, lines 43-46 (layer 27 is p-type) and col. 7, lines 49-50 (layer 27 is GaSb)), p-type is not the same as p-doped.

Claims 4 and 5 depend from and contain all the limitations of claim 1. The arguments regarding the lack of *prima facie* for claim 1 are applicable to claims 4 and 5.

Claims 11 and 12 have been rejected under 35 U.S.C § 102(e) as allegedly anticipated by Watanabe et al. (US 2002/0119661).

Claim 11 recites a method of etching a heterostructure with acetic acid, hydrogen peroxide, and water.

Watanabe is a published application with a filing date of 12/21/2001 claiming methods of manufacturing devices. The present application has a priority date of 12/17/2002, which is less than 1 year after the filing date of Watanabe. None of the claims of Watanabe are of the same scope as the present claims, in that all the claims of Watanabe include method steps not recited in the present claims, and all the claims of Watanabe include hydrochloric acid in the etchant. Thus, Applicants may establish invention of the subject matter of the rejected claims prior to the effective date of the reference by a declaration under 37 C.F.R. § 1.131.

The attached declaration establishes that the subject matter of claim 11 was conceived and reduced to practice no later than 09/28/2001, which is before the filing date of Watanabe. Thus, Watanabe is antedated.

Claim 12 depends from and contain all the limitations of claim 11. The arguments for claim 11 are applicable to claim 12.

Claim 14 and canceled claim 15 have been rejected under 35 U.S.C § 102(e) as allegedly anticipated by Boos et al. (US 5,798,540).

Claim 14 recites a method of etching a $Al_xGa_{1-x}Sb$ heterostructure with hydrofluoric acid, hydrogen peroxide, and lactic acid.

Boos discloses an etchant solution containing lactic acid, hydrogen peroxide, and hydrofluoric acid. The solution can etch InAs, $In_xAl_{1-x}As_ySb_{1-y}$, AlSb, and doped GaSb, but not GaAs or a Au-containing metal alloy.

Boos does not disclose the limitation in amended claim 14 that $Al_xGa_{1-x}Sb$ is etched with the solution. The Examiner cited to col. 3, lines 45-47 as disclosing $Al_xGa_{1-x}Sb$. The closest material listed in that section is AlGaAsSb. However, AlGaAsSb is not the same material as $Al_xGa_{1-x}Sb$. As all the claim limitations have not been disclosed, a *prima facie* case has not been made.

Claim Rejections – 35 U.S.C. § 103

Claim 13 has been rejected under 35 U.S.C § 103(a) as being allegedly unpatentable over Watanabe.

As explained above, the Watanabe reference has been antedated.

Claim 16 has been rejected under 35 U.S.C § 103(a) as being allegedly unpatentable over Boos. This claim has been canceled without prejudice.

Claims 17 and 18 have been rejected under 35 U.S.C § 103(a) as being allegedly unpatentable over Boos in view of Roman, Jr. (US 2004/0101988).

Claim 17 recites etching $Al_xGa_{1-x}Sb$ with a solution comprising AZ400K and water. Claim 18 recites a ratio of the ingredients.

Roman discloses an etchant containing AZ400K and water.

The filing date of Roman is 04/23/2003, which is after Applicants' filing date of 12/17/2002. Although Roman claims priority to earlier applications (09/875,115 and 60/209,947), the priority applications do not disclose AZ400K. Further, Roman does not claim the etchant. Thus Roman is antedated by the present application.

In view of the foregoing, it is submitted that the application is now in condition for allowance.

In the event that a fee is required, please charge the fee to Deposit Account No. 50-0281, and in the event that there is a credit due, please credit Deposit Account No. 50-0281.

Respectfully submitted,

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